

tips, about 5 mm. long and 1 mm. wide; rays 22-28, 1-1.5 cm. long; disc corollas glabrous, 5.5-6 mm. long; pappus 6-6.8 mm. long. Chromosome number $n = 4$.

TYPE: Brooks County, Texas, sandy soil along railroad right-of-way about 7.5 miles south of Falfurrias, *Jackson 2938-1* (KANU), August 7, 1959.

Haplopappus texensis is thus far known only from the type locality where several hundred plants were observed. A number of plants have been under cultivation since the species was first collected in late August of 1957. Numerous attempts to cross the species with morphologically related taxa of the *Blepharodon* section of *Haplopappus* have been unsuccessful.

On gross morphological characters, *H. texensis* may be distinguished from related perennial species by its erect growth habit, greater height, and less deeply divided leaves. — UNIVERSITY OF KANSAS, LAURENCE, KANSAS

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AGROPYRON HYBRIDS AND THE STATUS OF AGROPYRON PSEUDOREPENS¹

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A number of specimens of *Agropyron* from Iowa (listed in Table 1) have rhizomes similar to those of *A. repens* (L.) Beauv. or *A. smithii* Rydb., but bear narrow spikelets with enlarged, persistent glumes, resembling those of the cespitose *A. trachycaulum* (Link) Malte. Examination of these specimens shows that they have low seed set, ranging from 0-67% in the specimens examined. Pollen from these specimens was mounted in lacto-phenol and cotton blue. It was found that the pollen of each of these specimens was collapsed, shrunken, and without stainable contents. (See Figure 1).

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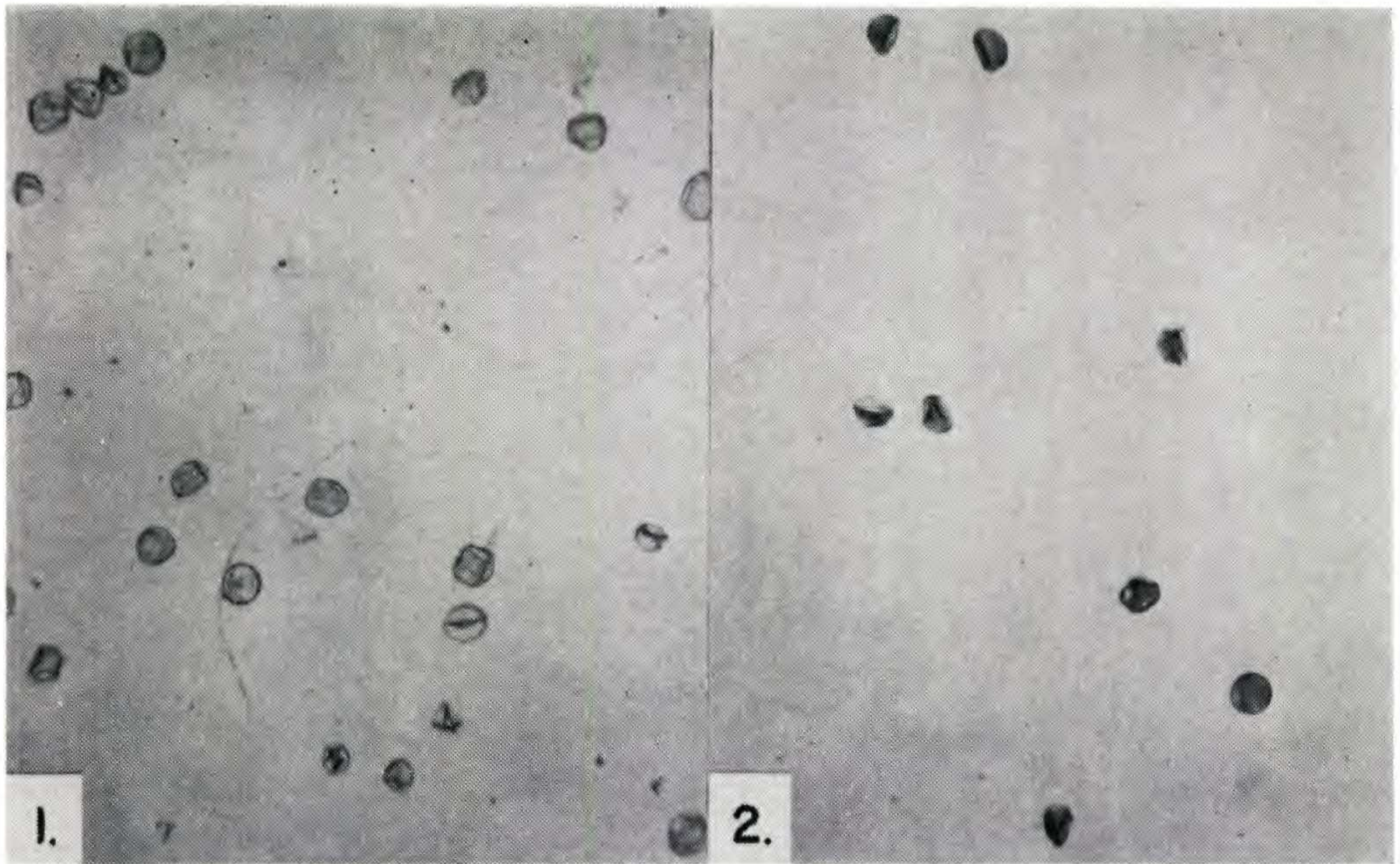


Figure Legend

Fig. 1-2. Pollen of *Agropyron* hybrids: Fig. 1. McDill 295 (*repens* × *trachycaulum*)
 Fig. 2. Rydberg 2018 (Type of *A. pseudorepens*)

Hubbard (1954) reported male-sterile hybrids of *A. repens* with other species in Great Britain. He stated that *A. repens* is self-sterile. Gillett and Senn (1960) have also found self-sterility in the American rhizomatous species, *A. smithii* Rydb. Many of our weed infestations of *A. repens* probably have originated from single seeds, followed by extensive vegetative spread. The absence of pollen of other genetic strains of *A. repens* near such a colony would make crossing with other species quite probable. Since *A. trachycaulum* is the only other common species of *Agropyron* in Iowa, and since the pollen sterile plants are morphologically similar to *A. trachycaulum*, the latter is probably the male parent of these putative hybrids. Since the hybrids were detected by the presence of rhizomes, other specimens of similar origin but lacking rhizomes may have been undetected. This cross may have occurred much more frequently than we are able to tell from herbarium records.

These pollen-sterile specimens key to *A. pseudorepens* Scribn. and Smith in Hitchcock's Manual. Fernald (1933) regarded this "species" as belonging to *A. trachycaulum*,

var. *majus* (Vasey) Fern. Beetle (1952) designated it as *A. trachycaulum*, var. *majus*, f. *pseudorepens* (Scribn. & Smith) Beetle.

The material of *A. pseudorepens* in the U. S. National Herbarium was examined. The type specimen (Rydberg 2018, from Kearney, Nebraska; U.S. 556663) bears rhizomes and has leaf blades strongly ridged above. The glumes are broad, strongly ridged, and nearly as long as the spikelets. Morphologically, the type is intermediate between *A. trachycaulum* and *A. smithii*. Pollen taken from the anthers of the type specimen is collapsed and shrunken (See Fig. 2). The type of *A. pseudorepens* is therefore a probable male-sterile hybrid of *A. trachycaulum* and *A. smithii*. Both species are known from Nebraska. The name *A. pseudorepens*, if used, should be applied only to such hybrids. It is not applicable to the Iowa hybrids, which are of other parentage.

Examination of other rhizomatous specimens of "*A. pseudorepens*" from the collections of the U. S. National Herbarium, cited in Table 2, revealed many instances of total pollen sterility. Such specimens may also represent hybrids of various rhizomatous species of *Agropyron* with the widespread *A. trachycaulum*.

Table 1. *Agropyron repens* × *A. trachycaulum* in Iowa

Specimen	% seed set	Pollen
Mason City. August 12, 1922 <i>L. H. Pammel</i> , (ISC 106233)	0	sterile
Dickens, Clay Co. <i>J. Fults 2908</i> (ISC)	67	sterile
Dickinson Co., August 1921, <i>R. I. Cratty</i> , (ISC 97682)	11	sterile
Hayden Prairie, Howard Co., <i>R. C. McDill 295</i> July 9, 1952 (ISC)	—	sterile
Kossuth Co., Wesley Twp., July 21, 1951, <i>R. W. Pohl 7136</i> (ISC)	33	sterile

Table 2. Pollen sterility in "*Agropyron pseudorepens*"

Specimen	% sterile pollen (100-400 grain samples)
Nebraska	
Kearney. P. A. Rydberg 2018 (TYPE) (US)	100 No caryopses
Kearney. C. L. Shear 272 (TOPOTYPE) (US)	100 No caryopses
Wyoming	
Mt. Washburn, Yellowstone N. P. A. S. Hitchcock 2051 (US)	100
Road Ranch. Williams & Griffiths 43, 44 (US)	100
Bear Lodge Mts. D. Griffiths 944 (US)	Completely sterile; no flowers
Colorado	
Sheephorn Divide. Shear & Bessey 1551 (US)	100
Florissant. T. A. Williams 2147 (US)	98
Jarosa Canyon. Agnes Chase 5389 (US)	0
New Mexico	
Copper Mines. J. M. Bigelow. Oct. 23, 1851 (US)	93
Los Alamos. Arsene & Benedict 17155 (US)	86
Near Magdalena. J. R. Swallen 1151 (US)	68
White Mt. Peak. Wooton. Aug. 1, 1901 (US)	93
Alberta	
Thelma. J. L. Bolton. July 16, 1936 (US)	100
Utah	
Manti N. F., A. S. Hitchcock 10895 & 10899 (US)	100
Arizona	
Spring below McKay Creek, Apache Res.	
Goodding & Schroeder 330-41 (US)	100
San Francisco Mts., 13 mi. e. of	
Flagstaff. K. F. Parker 5999 (US)	100
Oregon	
Silvies River to Burns. D. Griffiths & B. Hunter 219 (US)	88

LITERATURE CITED

- BEETLE, A. A. 1952. New names for Wyoming wheatgrasses. *Rhodora* 54: 195-196.
- FERNALD, M. L. 1933. *Agropyron*, Sect. *Goularda* in Eastern North America. *Rhodora* 35: 161-185.
- GILLETT, J. M. and H. A. SENN. 1960. Cytotaxonomy and infraspecific variation of *Agropyron smithii* Rydb. *Can. Journ. Bot.* 38: 747-760.
- HUBBARD, C. E. 1954. Grasses, pp. 77-83. Penguin. Hammonds-worth.
- SCRIBNER, F. LAMSON and J. G. SMITH. 1897. Native and introduced species in the genera *Hordeum* and *Agropyron*. U.S.D.A. Div. Agrostology Bull. 4:V:23-36

CHROMOSOME NUMBERS FOR SOME ANGIOSPERMS OF THE SOUTHERN UNITED STATES AND MEXICO

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Chromosome numbers are reported for 34 families including 57 genera and 73 species and varieties collected in the southern United States and Mexico. The chromosomes of one family, Turneraceae, and of 17 genera are given for the first time. The new generic reports include those for: *Brunnichia* (Polygonaceae), *Cnidoscolus* (Euphorbiaceae), *Cliftonia* (Cyrillaceae), *Piriqueta* (Turneraceae), *Rotala* (Lythraceae), *Samolus* (Primulaceae), *Halesia* (Styraceae), *Cynoctonum* (Loganiaceae), *Sabatia* (Gentianaceae), *Bonamia* (Convolvulaceae), *Pycnanthemum* (Labiatae), *Bacopa*, *Buchnera*, *Lindernia*, *Mecardonia*, *Trigiola* (Scrophulariaceae), and *Sphenoclea* (Campanulaceae). In addition, the first definite chromosome numbers are recorded for *Apios* (Leguminosae) and *Utricularia* (Lentibulariaceae). Among

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